TSEKHMISTRENKO, Yu.V. [TSekhmistrenko, IU.V.]

Theory of superfluidity of a Fermi system with an isotopic spin [with summary in English]. Ukr. fiz. zhur. 4 no.1:39-45 Ja-F '59. (MIRA 12:6)

1.Institut fiziki AN USSR.
(Superfluidity)

24 (5)

AUTHOR: Tsekhmistrenko, Yu. V. SOV/48-23-7-26/31

TITLE: On the Theory of Superfluidity of Nucleonic Gas (K teorii sverkhtekuchesti nuklonnogo gaza)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 910-911 (USSR)

ABSTRACT: This paper deals with a system of interacting nucleons with central forces acting between them. It is assumed that the number of neutrons is different from the number of protons, and the Hamilton system (1) is given for this case. By a canonical transformation according to N. N. Bogolyubov, the operator of the total momentum of the system becomes diagonal, and receives the shape in formula (4). By the equations (5), the unitarity of the transformation is secured. Subsequently, the distribution function (6) is introduced, which - as N. N. Bogolyubov showed - must satisfy the condition of unitarity (5) by the relations (7). The determination of the energy of the ground state of (1) then consists in a variation problem of the functional (8) under the secondary conditions (7). The work was suggested by N. N. Bogolyubov, and the author thanks him finally. There is 1 Soviet reference.

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24(5)
AUTHOR: Tsekhmistrenko, Yu. V. SOV/56-36-5-39/76

TITLE: Some Applications of the Summation Method of the Most Important Feynman Diagrams in the Theory of Metals (Nekotoryye primeneniya metoda summirovaniya vazhneyshikh diagramm Feynmana v teorii metallov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1546-1549 (USSR)

ABSTRACT: Fröhlich's model in the metal theory operates with the following Hamiltonian: $H = H_e + H_{ph} + H_{int}$; $H_e = \sum_{ks} \varepsilon(k) a^+_{k,s} a_{k,s}$;

$H_{ph} = \sum_q \omega(q)\, b^+_q b_q$;

$H_{int} = \sum_{kqs} g(q) \sqrt{\frac{\omega(q)}{2V}}\, a^+_{ks} a_{k+q,s} (b^+_q + b_{-q})$

A number of physical results can, however, be obtained by means of a simplified phonon-free model, if $H_1 = H_e + H'_{int}$;

$H'_{int} = -\frac{1}{2V} \sum_{kk'qss'} I(kk'q)\, a^+_{k,s}\, a_{k+q,s}\, a^+_{k',s'}\, a_{k'-q,s'}$, where $I(k,k',q)$ is a function, which decreases with sufficient rapidity with increase of the distance from the Fermi surface. The method of summating the most important Feynman diagrams makes

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it possible to obtain the phonon-free Hamiltonian from the general one (1) by assuming that the average phonon energy is negligibly low compared to the average energies of the electron transitions: $\omega \ll \Delta\varepsilon$. This problem is solved by the author himself. He sets up a Hamiltonian with direct electron-electron interaction as a sum of terms, each of which describes a Feynman diagram the external lines of which represent electrons (see figure). It is shown that this Hamiltonian, in the case of the assumptions mentioned, describes a Fröhlich system of interacting electrons and phonons. The author thanks Academician N. N. Bogolyubov for raising the problem, and V. V. Tolmachev for valuable discussions. There are 1 figure and 3 references, 2 of which are Soviet.

ASSOCIATION: Institut fiziki Akademii nauk Ukrainskoy SSR (Physics Institute of the Academy of Sciences, Ukrainskaya SSR)

SUBMITTED: December 4, 1958

TSEKHMISTRENKO, Yu.V.

Energy spectrum of heavy nuclei excited by slow neutrons. Dop.AN URSR no.10:1388-1392 '60. (MIRA 13:11)

1. Institut fiziki AN USSR. Predstavleno akademikom N.N. Bogolyubovym [Boholiubov, M.M.]

(Nuclei, Atomic)

S/048/60/024/007/004/011
B019/B060

AUTHORS: Nemets, O. F., Saltykov, L. S., Sokolov, M. V., Tsekhmistrenko, Yu. V.

TITLE: Determination of the Spins and Parities of Levels From the Inelastic Scattering and the "Pickup" Reactions by Be^9 19

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 7, pp. 858-861

TEXT: This is the reproduction of a lecture delivered at the 10th All-Union Conference on Nuclear Spectroscopy held in Moscow from January 19 to 27, 1960. It is stated in the introduction that the determination of spin and parity of the first excited level is of decisive importance for the definition of the Be^9 nuclear model. Despite a great number of papers on the determination of spin and parity of the 2.43-Mev level, these parameters are not yet exactly determined. The authors, therefore, studied the angular distribution of inelastically scattered 6.8-Mev protons and

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13.6-Mev deuterons. In doing so, they examined the reactions (p,d) and (d,t) in order to clarify the reaction mechanism at the above-mentioned energies. The measurements were made on the cyclotron of the institute mentioned under Association; the detector of the inelastically scattered deuterons and tritons from the (d,t) reaction has already been described in a previous paper (Ref. 4). The inelastically scattered protons and deuterons were recorded with a scintillation spectrometer. Figs. 1 to 4 graphically illustrate the angular distribution of the inelastic scattered protons, the angular distribution of the inelastic scattered deuterons, the angular distribution of deuterons from the $Be^9(p,d)Be^8$ reaction and the angular distribution of tritons from the reaction $Be^9(d,t)Be^8$. Electric and nuclear interactions are assumed in the theoretical consideration in order to clarify the angular distribution yielded by experiments. Under these premises, formula (1) is written down for the cross section of the final state of Be^9 when $l = 2$. It follows from further discussion of results that spin and parity of the

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Determination of the Spins and Parities of Levels From the Inelastic Scattering and the "Pickup" Reactions by Be^9

S/048/60/024/007/004/011
B019/B060

2.43-Mev level is given by $5/2^+$. The authors thank M. V. Pasechnik for his interest in the work, Yu. A. Bin'kovskiy for having prepared the targets, and the staff of the cyclotron laboratory. There are 4 figures and 14 references: 4 Soviet, 9 US, and 1 Italian.

ASSOCIATION: Institut fiziki Akademii nauk USSR
(Institute of Physics of the Academy of Sciences UkrSSR)

Card 3/3

OL'KHOVSKIY, V.S. [Ol'khovs'kyi, V.S.]; TSEKHMISTRENKO, Yu. V.

Analytical structure of the S-function of elastic scattering in the case of infinite potentials. Ukr. fiz. zhur. 6 no.2:149-156 Mr-Ap '61. (MIRA 14:6)

1. Kiyevskiy ordena Lenina gosudarstvennyy universitet im. T. G. Shevchenko i Institut fiziki AN USSR.
(Neutrons--Scattering)
(Functions of complex variables)
(Potential, Theory of)

S/903/62/000/000/007/044
B102/B234

AUTHOR: Tsekhmistrenko, Yu. V.

TITLE: To the general theory of nuclear reactions

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 136-137

TEXT: To arrive at a general formalism describing both resonance and direct interactions, H. Feshbach (Ann. of Phys., 5, 357, 1958) has developed a new theory based on the method of effective potentials. The present paper gives a contribution to this theory. Besides a more convenient description of the compound nucleus the author succeeds in separating resonance and nonresonance parts of the amplitude, thus obtaining a series of new results with respect to the reaction parameters and the analytical behavior of the amplitudes. Considering the interaction of a nuclear complex with a target nucleus, by satisfying the Schroedinger equation

$$\left(-\frac{\Delta}{2M}+\hat{H}_\xi+V(r,\xi)-E\right)\Psi(r,\xi)=0, \qquad (1)$$

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To the general theory of nuclear reactions

one obtains for the amplitudes of elastic and inelastic scattering

$$f(0\to 0)=-\frac{M}{2\pi}\langle K_0'|\left(E-e_0+\frac{\Delta}{2M}\right)\left(E-e_0+i\eta+\frac{\Delta}{2M}-\hat{V}_{00}\right)^{-1}\hat{V}_{00}|K_0\rangle; \quad (2)$$

$$f(0\to S)=-\frac{M}{2\pi}\langle\tilde{K}_S^{(-)}|\hat{V}_{S0}'|\tilde{K}_0^{(+)}\rangle, \quad (3)$$

$$\hat{V}_{SS'}=\langle S|V|S'\rangle+\sum_{S_1\neq S'}\langle S|V|S_1\left(E+i\eta+\frac{\Delta}{2M}-e_{S_1}\right)^{-1}\langle S_1|V|S'\rangle+\ldots;$$

$$\left(-\frac{\Delta}{2M}+\hat{V}_S'-E+e_S\right)|\tilde{K}_S^{(\pm)}\rangle=0;$$

when Feynman's operator technique is applied; quantum exchange between the nucleons of projectile and target is neglected. r is the distance between the centers of mass and $\hat{H}_\xi$ the Hamiltonian of internal movement of projectile and target; $V(r,\xi)$ is the interaction potential, $|S\rangle$ are the proper unit vectors of $\hat{H}_\xi$ corresponding to the energy e_S; $\hat{V}_0'=\hat{V}_{00}$, and for $S\neq 0$ $\hat{V}_S'=\hat{V}_{SS}$.

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To the general theory of nuclear reactions

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B102/B234

This formalism makes it possible to obtain an adequate mathematical description of the compound nucleus without unphysical conceptions such as the "channel radius". The cross sections near an isolated resonance are given by

$$\sigma_{0\to 0} = \frac{\pi}{K_0^2}\frac{\Gamma_0^2}{(E-E_0)^2+\Gamma^2/4}; \quad (4), \qquad \sigma_{0\to S} = \frac{\pi}{K_0^2}\frac{\Gamma_0\Gamma_S}{(E-E_0)^2+\Gamma^2/4}; \quad (5).$$

The fact that $\Gamma = \sum_{S\neq 0}\Gamma_S$ indicates that the partial widths of potential scattering do not enter the formula of the total width.

ASSOCIATION: Institut fiziki AN USSR (Institute of Physics AS UkrSSR)

Card 3/3

OLKHOVSKIY, V.S. [Ol'khovs'kyi, V.S.]; TSEKHMISTRENKO, Yu.V. [TSekhmistrenko, IU.V]

Elastic neutron scattering on nonspherical nuclei with a rotational spectrum. Ukr. fiz. zhur. 7 no.12:1265-1270 D '62. (MIRA 15:12)

1. Kiyevskiy gosudarstvennyy yniversitet im. Shevchenko i Institut fiziki AN UkrSSR, KIyev.
(Neutrons—Scattering) (Nuclei, Atomic—Spectra)

OL'KHOVSKIY, V.S. [Ol'khovs'kyi, V.S.]; TSEKHMISTRENKO, Yu. V.

Inelastic neutron scattering on nonspherical nuclei with a rotational spectrum. Ukr. fiz. zhur. 7 no.12:1363-1364 D '62. (MIRA 15:12)

1. Kiyevskiy gosudarstvennyy universitet im. Shevchenko i Institut fiziki AN UkrSSR, Kiyev.
(Neutrons—Scattering) (Nuclei, Atomic—Spectra)

ACCESSION NR: AP4010404 S/0185/63/008/012/1287/1302

AUTHOR: Tsekhmistrenko, Yu. V.

TITLE: Contribution to the theory of nuclear reactions

SOURCE: Ukrayins'ky*y fiz. zhurnal, v. 8, no. 12, 1963, 1287-1302

TOPIC TAGS: nuclear structure, nuclear reaction, nonrelativistic quantum theory, particle, nucleon, quantum, quantum number, quantum transition, Schroedinger equation, PSI, PSI-function, wave function, transition amplitude, transition probability, wave packet, eigenvalue, eigenfunction, particle indistinguishability, potential energy, orthogonality, nonorthogonality, S-matrix, T-matrix, symmetry, antisymmetry, energy operator, Hamiltonian, Hamiltonian operator, Hermitian operator, Fourier integral, iteration, time dependence

ABSTRACT: The present work was carried out because of the need for a rigorous basis of formulas for the amplitude of an arbitrary nuclear process. Shortcomings of the derivations by Brenig and Haag, Gell-Mann and Goldberger are pointed out. A time-dependent theory of quantum transitions in a continuum has been derived, in which the adiabatic hypothesis and mathematical principles equivalent to it are not used. The initial condition is given at a finite moment of time. The transition

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ACCESSION NR: AP4010404

amplitude is expressed linearly through an auxiliary amplitude $g^{(3)}$ for which a linear integral singular equation was obtained; the auxiliary operator H_0 is used. Linearity of the fundamental equation

$$g^{(3)\,b\tilde{E}}_{a,\tilde{E}_0}(\tilde{E}_0)-\sum_{b'}\int d\tilde{E}'\,g^{(3)\,b'\tilde{E}'}_{a,\tilde{E}_0}(\tilde{E}_0)\,\langle\, b\tilde{E}\,|\,H-\tilde{E}'\,|\,b'\tilde{E}'\,\rangle\,\zeta(\tilde{E}_0-\tilde{E}')=$$

$$=-\sum_{b'}\int d\tilde{E}'\,\langle\, b\tilde{E}\,|\,H-\tilde{E}_0\,|\,b'\tilde{E}'\,\rangle\,\gamma^{(1)\,b}_{a_0}(\tilde{E}_0)\,\delta(\tilde{E}_0-\tilde{E}_0); \qquad (26a)$$

makes it possible to obtain approximate formulas of the type of formula

$$\tilde{g}^{(3)\,a\tilde{E}_0}_{a\tilde{E}_0}(\tilde{E}_0)=(\tilde{\varphi}^{-}_{a\tilde{E}_0},\,(H-\tilde{E}_0)\,\tilde{\varphi}^{+}_{a,\tilde{E}_0}), \qquad (41)$$

which are free of the shortcomings of the old formulas, and to correctly calculate the interaction in the initial and final states for reactions with rearrangement of the particles (if the nuclear processes can be described by the Shcroedinger equation). It is shown that the results of the theory are independent of H_0 and converge with the final result of Eckstein's theory, being expressed by a full PSI-function, as in the S-matrix theory; hence all the results in the author's theory are valid which follow from the theorem of reciprocality and unitarity. A

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ACCESSION NR: AP4010404

formula is also obtained which generalizes the relationship of Gell-Mann and Goldberger. The author thanks Academician M. M. Bogolyubov and Professors O. S. Davy*dov and I. S. Shapiro for useful discussion of the work. Orig. art. has: 67 formulas.

ASSOCIATION: Insty*tut fizy*ky* AN URSR, Kiev (Physics Institute)

SUBMITTED: 11May63 DATE ACQ: 20Jan64 ENCL: 00

SUB CODE: NS NO REF SOV: 000 OTHER: 005

Card 3/3

TSEKHMISTRENKO, Yu., kand. fiz.-matem. nauk

Attack of the invisibles. Nauka i zhyttia 13 no.10:1-3 N '63.
(MIRA 16:12)

TSEKHMISTRENKO, Yu. V.

"The Field Model of Nuclear Interactions."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Inst Physics UkSSR

OL'KHOVSKIY, V.S. [Ol'khovs'kyi, V.S.]; TSZKHMISTRENKO, Yu.V.

Polarization in neutron scattering by nuclei with rotational and vibrational spectra. Ukr. Fiz. zhur. 9 no.2:220-223 F '64 (MIRA 17:7)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko i Institut fiziki AN UkrSSR, Kiyev.

ACCESSION NR: AP4022696 S/0185/64/009/003/0251/0259

AUTHOR: Ol'khovs'ky*y, V. S. (Ol'khovskiy, V. S.); Tsekhmistrenko, Yu. V.

TITLE: Elastic and inelastic scattering of neutrons by nuclei with rotational and vibrational spectra

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 3, 1964, 251-259

TOPIC TAGS: neutron scattering, optical model, statistical scattering model, nuclear potential, effective potential method, elastic neutron scattering, inelastic neutron scattering, M-20 computer, 0.5-3 MeV neutron

ABSTRACT: The method of effective potentials was applied to the dynamical problem of elastic and inelastic scattering of neutrons with energies 0.5-3 MeV by non-spherical nuclei with a rotational spectrum and by spherical nuclei with a vibrational spectrum. The scattering which goes through the stage of formation of a compound nucleus was taken into account. The calculations, which were carried out by means of electronic computer M-20, show that the best agreement between the proposed model and the experimental data on the scattering of neutrons by nuclei of C^{12}, Ne^{20}, Mg^{24}, Ti^{48}, Fe^{56}, Pb^{206}, Th^{232}, U^{238}, is attained with the following values of the parameters: the depth of the real part of potential U_0 = 50 MeV; the depth

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ACCESSION NR: AP4022696

of the imaginary part W_0 = 1 MeV; the nucleus radius $R = (1.22\sqrt[3]{A} + 0.74) \cdot 10^{-13}$ (A is the mass number of the element). Moreover, the proposed model gives results which are closer to the experimental data than those of the simple optical model of Feshbach, Porter and Weisskopf and the statistical model of Hauser and Feshbach.

Orig. art. has: 7 sets of numbered equations as well as 13 graphs, each of which compare, for different combinations of target isotope and incident neutron energy, the experimental results of the angular dependence of scattering cross-section with results obtained using the authors' method and results based on optical-model and statistical-model calculations.

ASSOCIATION: Ky*yivs'ky*y derzhuniversy*tet imeni T. G. Shevchenko (Kiev State University); Insty*tut fizy*ky* AN Ukr SSR, Kiev (Institute of Physics AN UkrSSR)

SUBMITTED: 15Jul63 DATE ACQ: 08Apr64 ENCL: 00

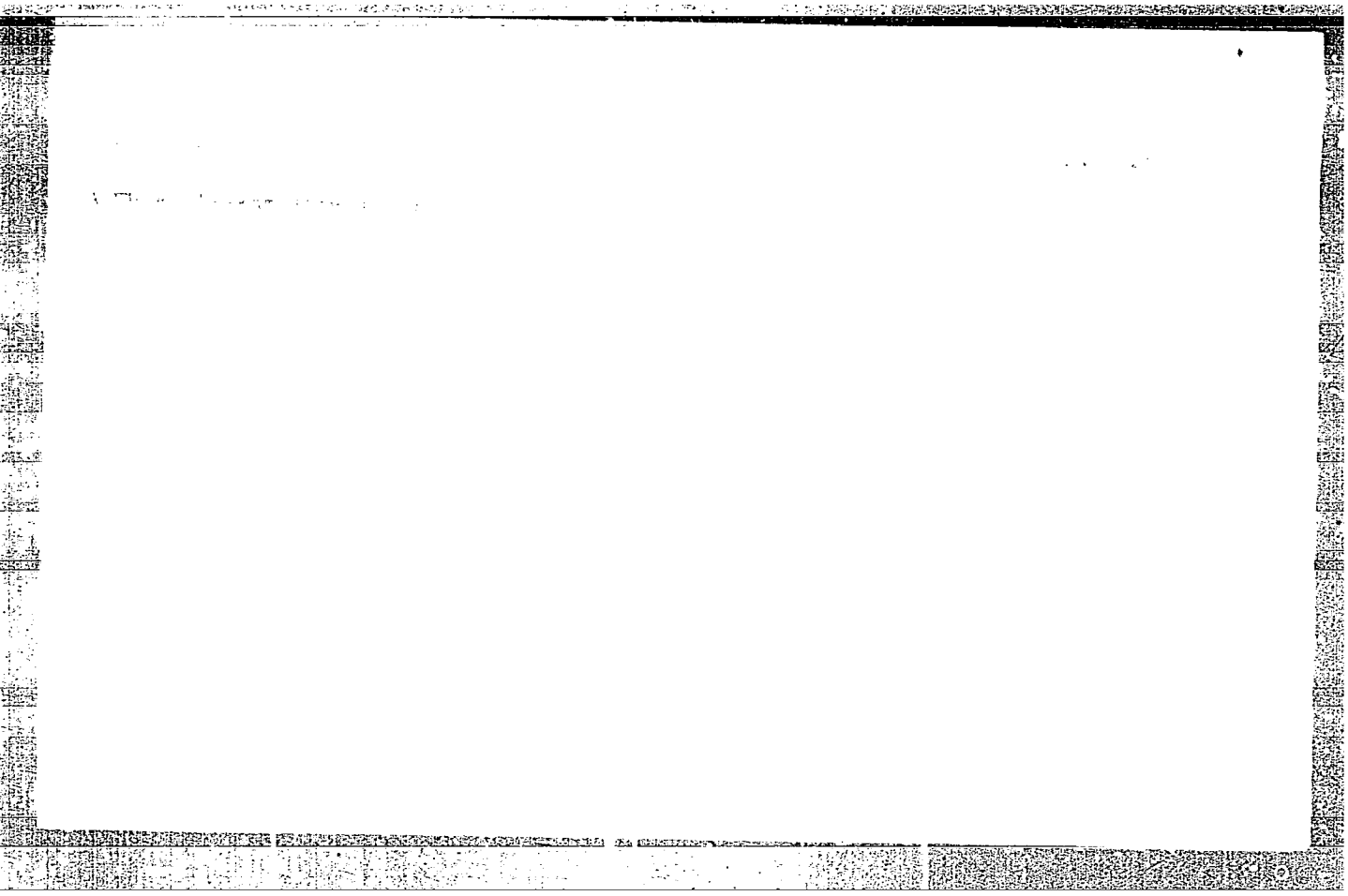
SUB CODE: NS, PH NO REF SOV: 008 OTHER: 016

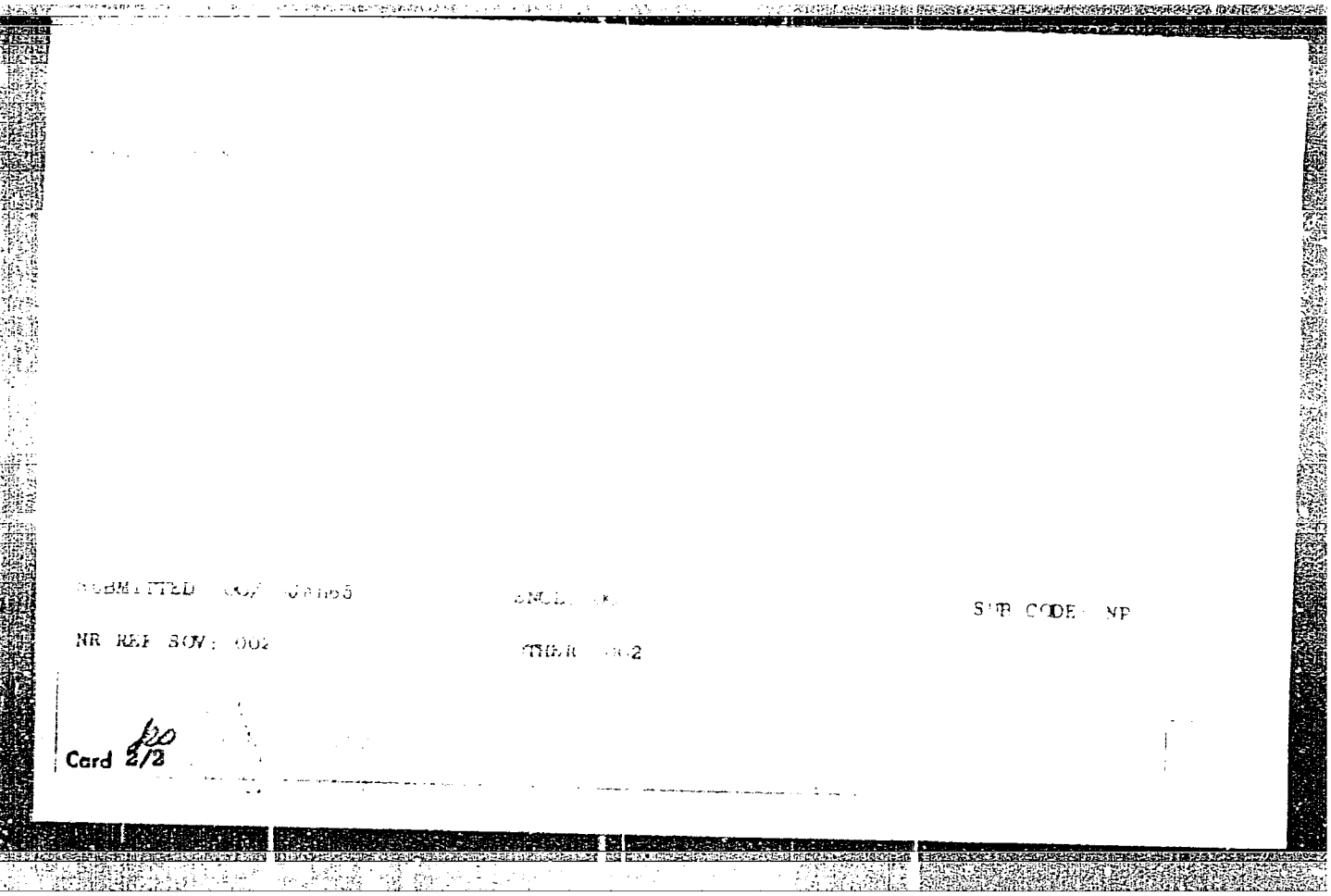
Card 2/2

IOMTEV, M.B.; TSEKHANSKAYA, Yu.V. (Moscow)

Diffusion of naphthalene in compressed ethylene and carbon dioxide. Zhur. fiz. khim. 38 no.4:896-900 Ap '64.
(MIRA 17:6)

1. Gosudarstvennyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.





SUBMITTED [illegible] ENCL [illegible] SUP CODE NP

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Card 2/2

L 33616-65 EPF(n)-2/EWT(m)/EWP(b)/EWP(t) Pu-4/Pad/Pet IJAEP/AJP(c) WW/
JD/HW/JG

ACCESSION NR: AP5005963 S/0048/65/029/002/0319/0325

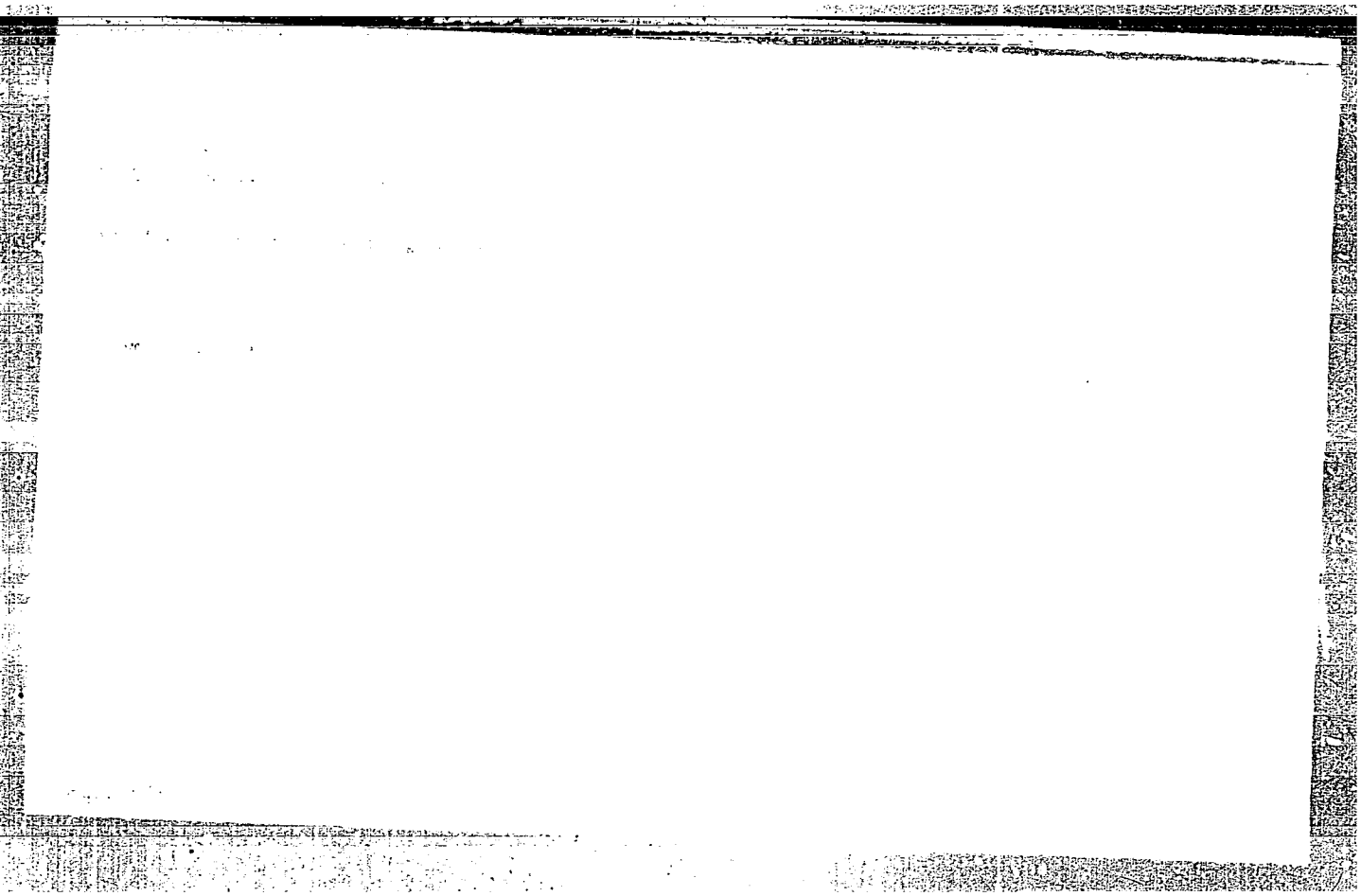
AUTHOR: Ol'khovskiy, V.S.; Tsekhmistrenko, Yu.Y. 18 46 B

TITLE: Elastic and inelastic scattering of neutrons by nuclei with rotation and vibrational spectra /Report, 14th Annual Conference on Nuclear Spectroscopy held in Tbilisi 14-22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.2, 1965, 319-325

TOPIC TAGS: neutron scattering, nuclear scattering, nuclear model, nuclear spectroscopy, neon, magnesium, silicon, thorium, uranium, carbon, titanium, iron, nickel, lead

of the new formula for the



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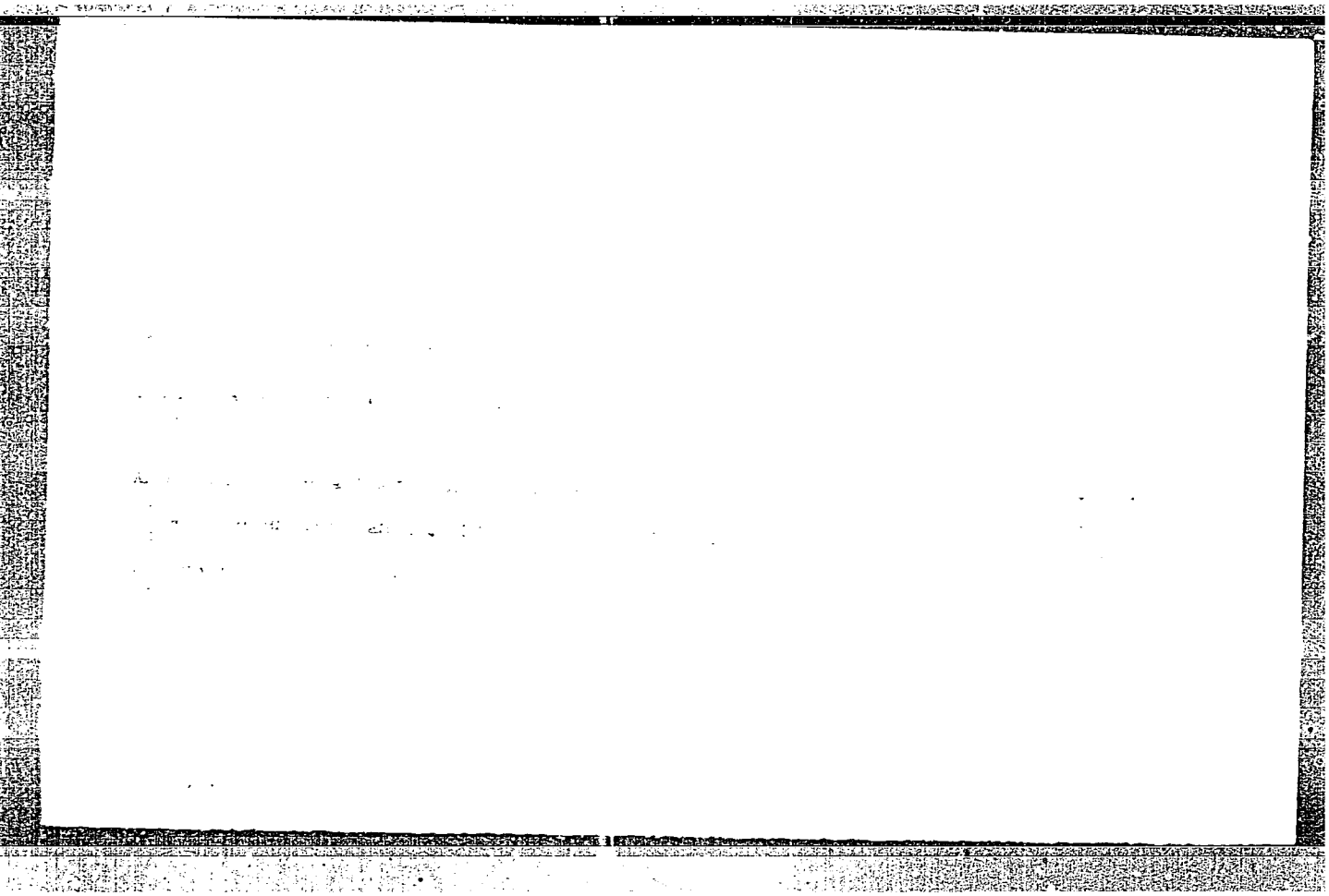
TSEKHMISTRENKO, Yu.V.; OL'KHOVSKIY, V.S.

Arriving at a correct theory of nuclear reactions with particle redistribution. Izv. AN SSSR. Ser. fiz. 29 no.7:1207-1211 Jl '65. (MIRA 18:7)

1. Institut fiziki AN UkrSSR i Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.

TSEKHMISTROV, A.P.

Fat-free cheese made from buttermilk. Kharch.prom. no.4:74 O-D '63.
(MIRA 17:1)



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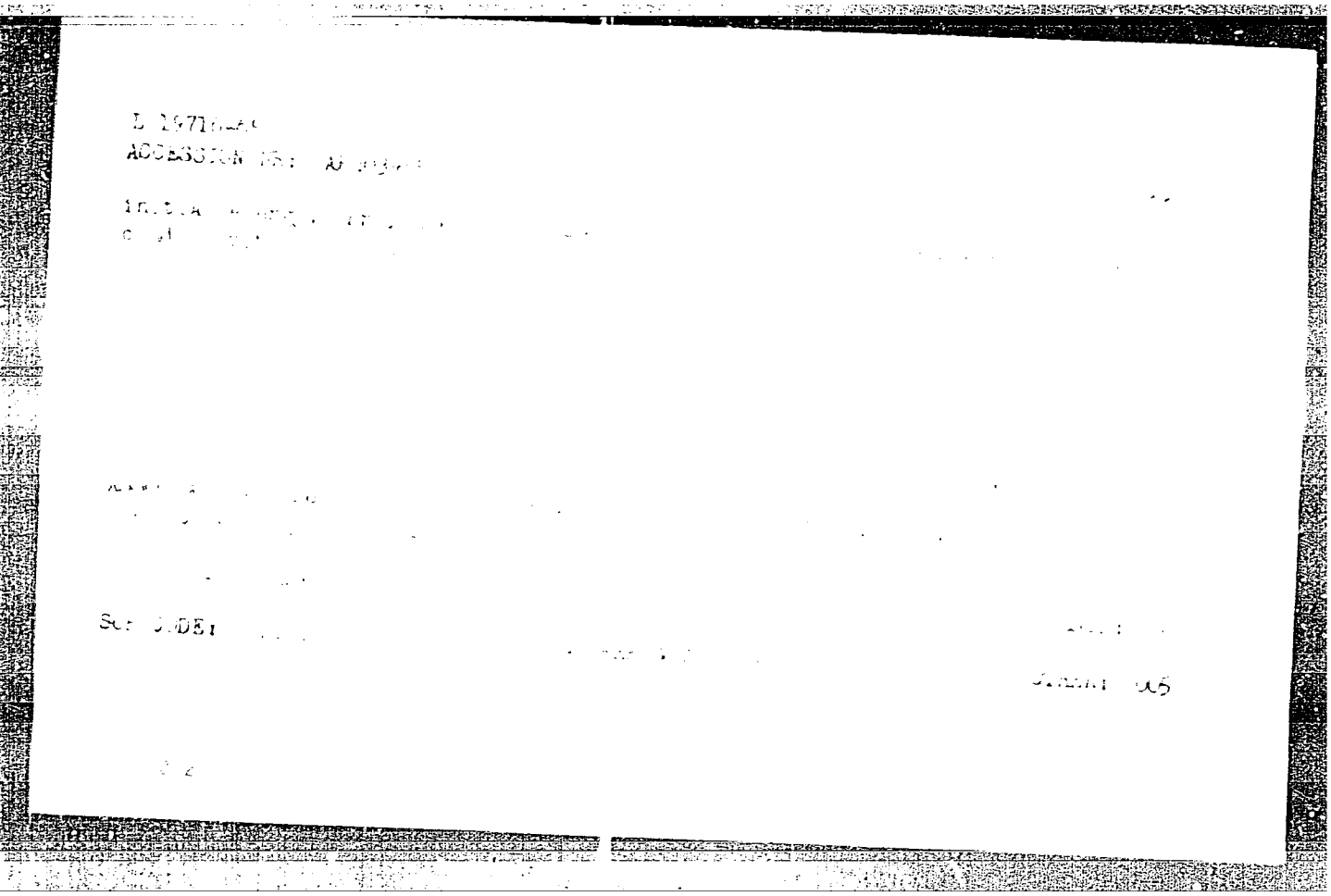

ACCESSION NR: AP4040522 S/0080/64/037/006/1222/1227

AUTHOR: Dubrovo, S. K.; Tsekhomskaya, T. S.

TITLE: Vitreous lithium gallosilicates

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 6, 1964, 1222-1227

TOPIC TAGS: lithium gallosilicate glass, sodium gallosilicate glass, lithium silicate glass, lithium aluminosilicate glass, glass formation, glass crystallization, glass physical property

ABSTRACT: Certain previously discovered favorable characteristics of gallosilicate glasses as compared to aluminosilicate glasses prompted a study of glass formation and crystallization in the Li_2O-Ga_2O_3-SiO_2 system. Glasses containing Li_2O 7—40, Ga_2O_3 5—35, and SiO_2 40—90 mol% were synthesized. Glasses with a Ga_2O_3 : Li_2O ratio higher than 1 are singled out because analogous aluminosilicate glasses could not be prepared. The region of glass formation and crystallization is shown in the triangular phase diagram. The density d, the refractive index n, the volume containing 1 at·g ofoxygen V_0, and

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ACCESSION NR: AP4040522

the coefficient of linear thermal expansion were determined for various glass compositions in the system and compared with the corresponding data for sodium gallosilicate or lithium silicate glasses. The V_0 values decrease with increasing Li_2O content, and increase with increasing Na_2O content, while the n values increase with increasing R O[R = Na, Li] content in both sodium and lithium gallosilicate glasses with the same SiO_2 : Ga_2O_3 ratios. The effect of Ga_2O_3 substitution for SiO_2 is to increase the coefficient of linear thermal expansion in low-alkali glasses and to decrease it in high-alkali glasses. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 17Dec63 DATE ACQ: 06Jul64 ENCL: 00

SUB CODE: MT NO REF SOV: 013 OTHER: 001

Card 2/2

TSEKHNOVICH, L.I., kand. tekhn. nauk.

Nonstationary dynamic processes in a mechanical system with electric driving. [Izd.] LONITOMASH 43:75-83 '57. (MIRA 11:6)
(Mechanics, Analytic)

TSEKHNOVICH, L.I., kandidat tekhnicheskikh nauk.

Optical method for investigating stresses in gear teeth. Vest.mash. 27 no.7:12-21 Jl '47. (MLRA 9:4)

1.Dnepropetrovskiy metallurgicheskiy institut.
(Gearing) (Strains and stresses)

TSEKHNOVICH, L.I., kand.tekhn.nauk, dots.

Selecting the degree of spring tightening of excavator swing mechanism dampers. Vest. mash. 38 no.7:23-25 Jl '58. (MIRA 11:8)

(Excavating machinery) (Damping (Mechanics))

SOV/124-58-10-10802

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 12 (USSR)

AUTHOR: Tsekhnovich, L. I.

TITLE: Nonstationary Dynamic Processes in a Mechanical System With an Electrical Drive (Neustanovivshiyesya dinamicheskiye protsessy v mekhanicheskoy sisteme s elektricheskim privodom)

PERIODICAL: V sb.: Vopr. teorii i rascheta pod"yemnotransp. mashin Moscow - Leningrad, Mashgiz, 1957, pp 75-83

ABSTRACT: A linear differential equation with constant coefficients is investigated which describes the torsional vibrations of a system consisting of an armature of a motor and a coaxial drive pulley. The rotating moment of the electric motor is taken as a linear function of the angular velocity. For the moment of elastic forces twisting the linkage a formula is derived in which the elasticity of the linkage is accounted for by means of a certain abstract coefficient of the dynamics of the system dependent upon the elastic parameters of the system. This relationship is represented graphically.

N. A. Rostovtsev

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SOV/122-58-7-6/31

AUTHOR: Tsekhnovich, L.I., Candidate of Technical Sciences, Docent

TITLE: The Choice of the Flexible Coupling Adjustment in the Turning Mechanism of an Excavator (Vybor zatyazhki amortizatora povorotnogo mekhanizma ekskavatora)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 7, pp 23-25 (USSR)

ABSTRACT: The turning drive of EGL-15, ESh-14/75 and other excavators contains a flexible coupling inside one of the gear wheels. The torque is transmitted from the rim to the hub through tangentially disposed coil springs. The effect of pre-loading the springs on the peak dynamic load in the mechanism is examined and the optimum pre-load determined. The simplified scheme for analysis consists of a motor driving an inertia through a shaft with a pre-loaded flexible coupling. The free torsional oscillations caused by a transient driving torque are first found for the case of a coupling pre-load exceeding the maximum torque. When the maximum torque exceeds the pre-load, conditions differ before and after the coupling pre-load is exceeded. The two conditions are described by two sets of equations. The peak torque is computed. It is lowest when the flexible coupling pre-load corresponds to the

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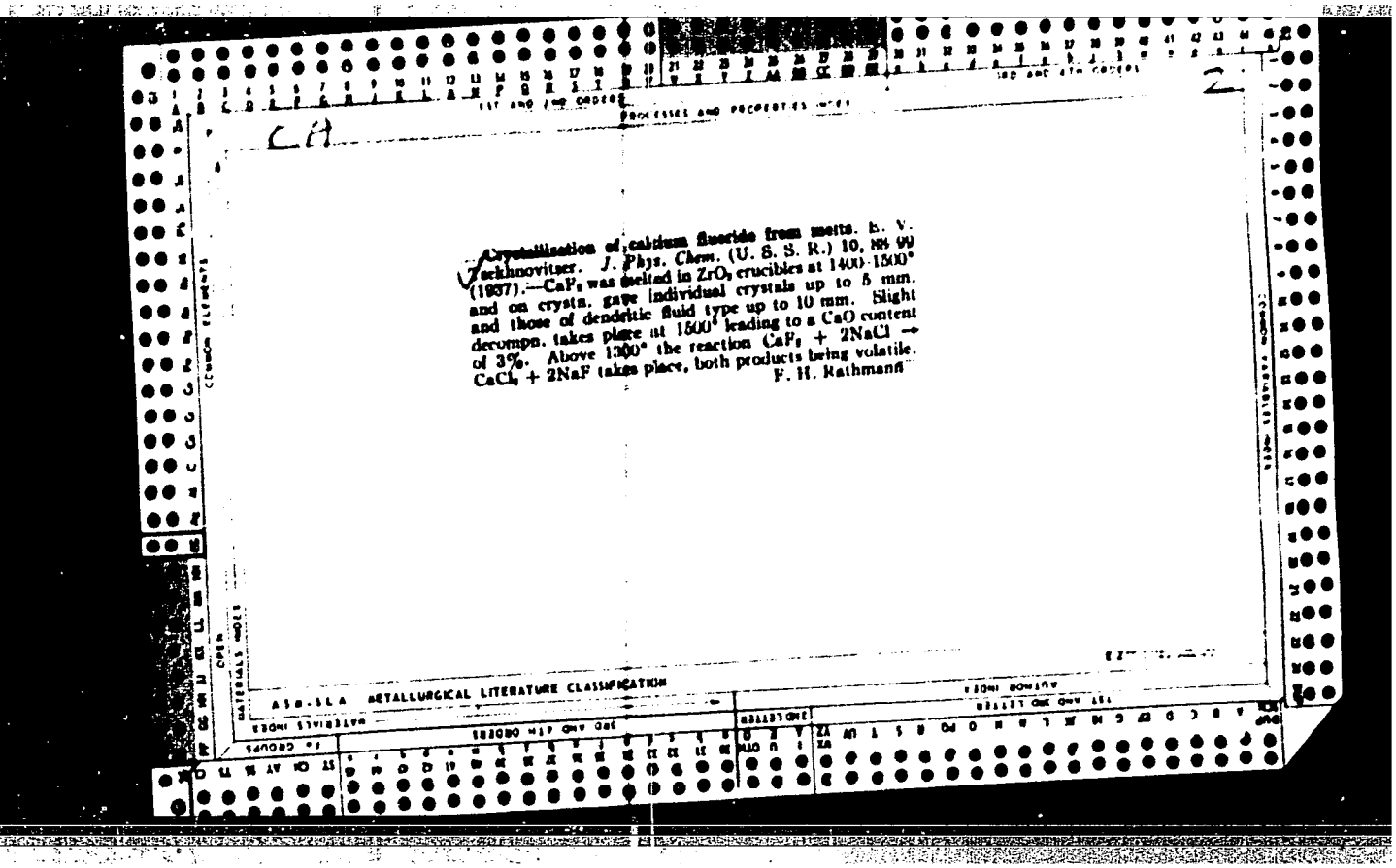
The Choice of the Flexible Coupling Adjustment in the Turning Mechanism of an Excavator

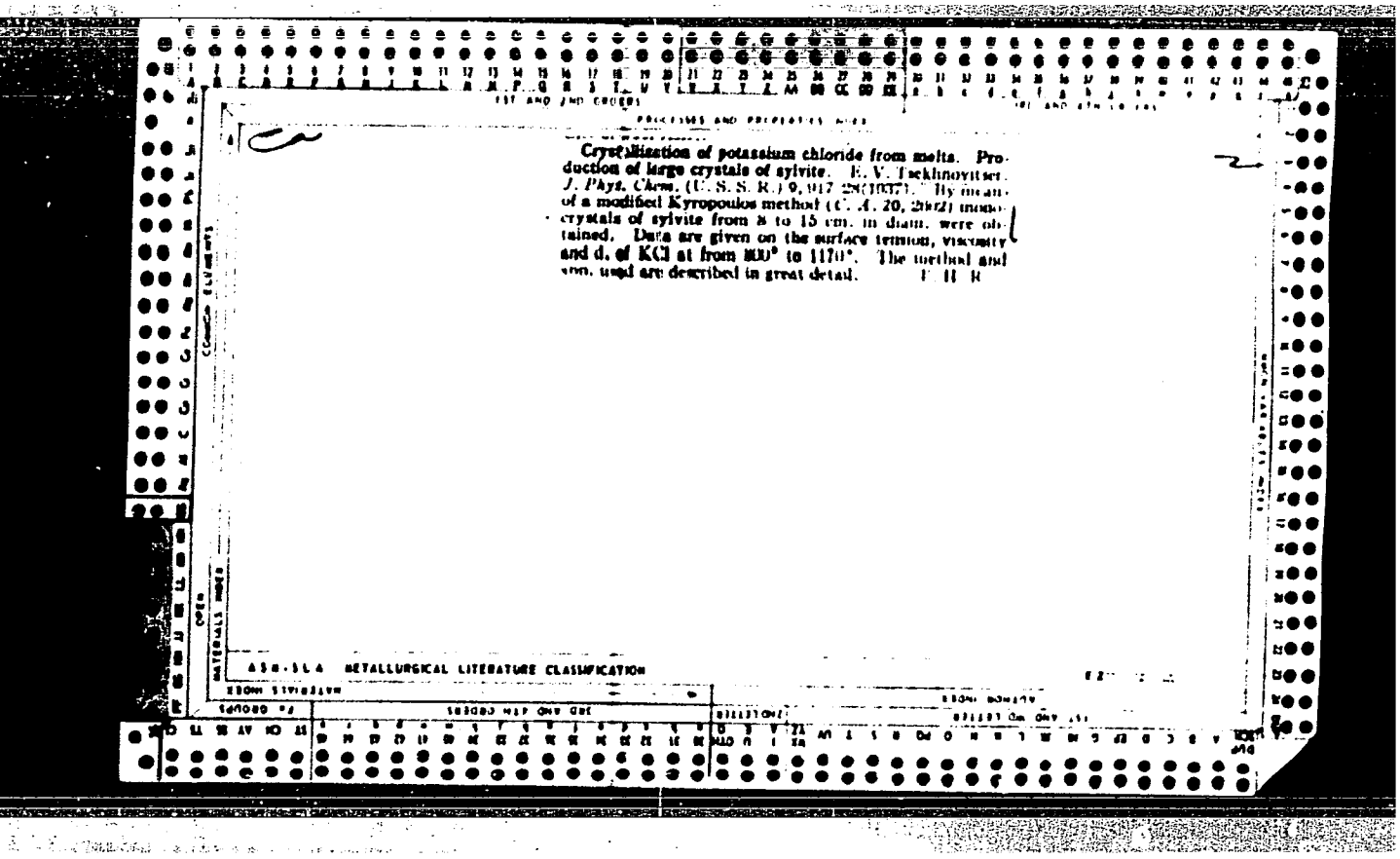
mean torque transmitted by a stiff shaft. A test rig incorporates a torque arm, which is attached to the stator of the driving motor and is elastically constrained by pre-loaded coil springs in both directions. A strain gauge is attached to the torque arm. Figure 4 shows typical oscillograms obtained after starting the motor. Figure 5 is a plot of the peak torque against the ratio of the pre-load torque on the arm and the starting torque computed for a rigid shaft. A sharply defined minimum appears when the ratio is unity. At a ratio of 0.2, the peak torque is about four times larger than the minimum and the same is true at a ratio of 1.9. There are 5 figures.

KOZHEVNIKOV, S.N.; TSEKHNOVICH, L.I.

Mechanisms with fixed-relation movement of moving members. Trudy Sem. po teor. mash. 14 no.56:59-89 '55. (MLRA 8:7)
(Mechanical movements)

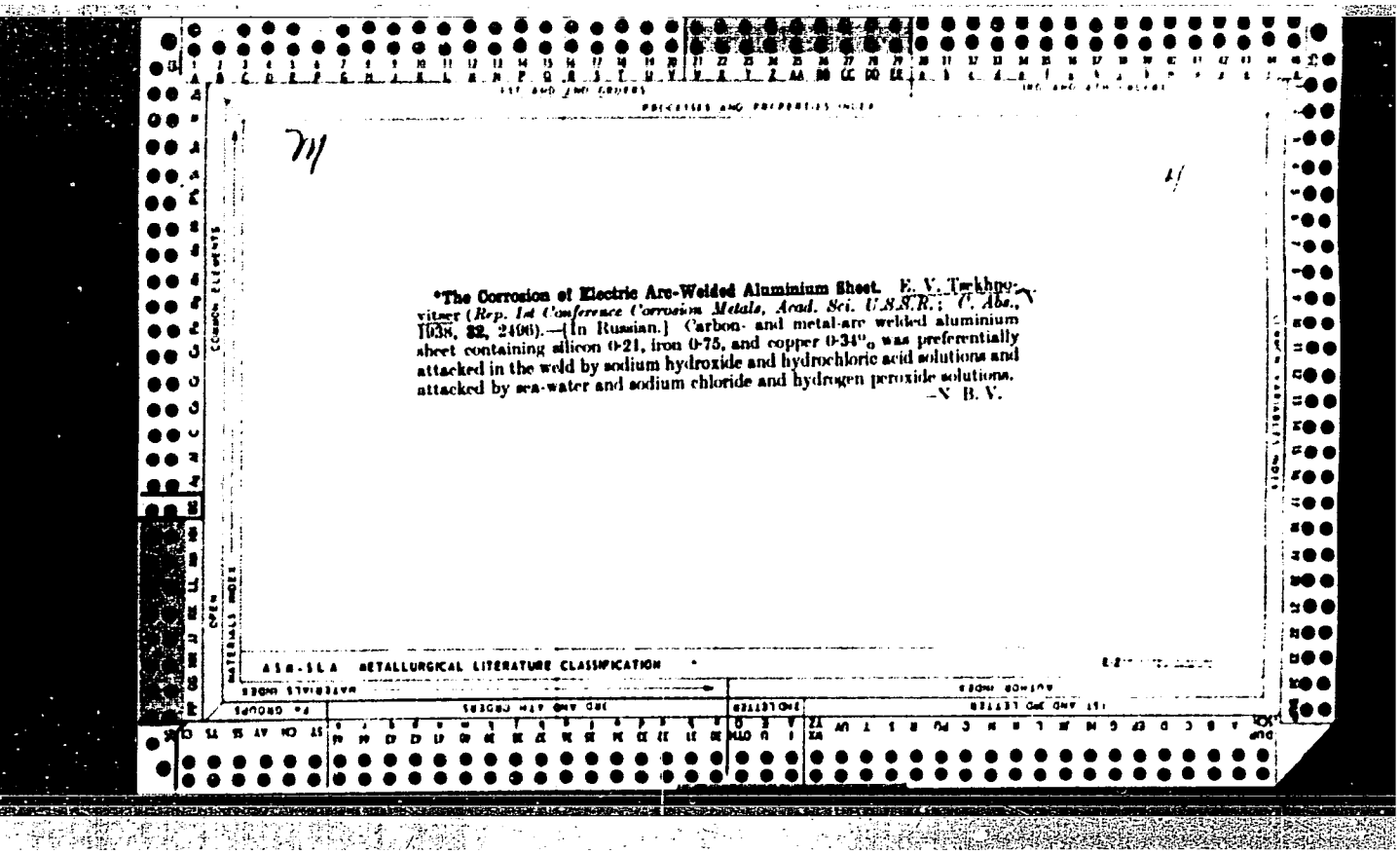


Crystallisation of calcium fluoride from melts. L. V. Tsekhnovitser. *J. Phys. Chem.* (U. S. S. R.) 10, No. 99 (1937).—CaF_2 was melted in ZrO_2 crucibles at 1400-1500° and on crysts. gave individual crystals up to 5 mm. and those of dendritic fluid type up to 10 mm. Slight decompn. takes place at 1500° leading to a CaO content of 3%. Above 1300° the reaction $CaF_2 + 2NaCl \rightarrow CaCl_2 + 2NaF$ takes place, both products being volatile.
F. H. Rathmann



Crystallization of potassium chloride from melts. Production of large crystals of sylvite. E. V. Tsekhnovitser. *J. Phys. Chem.* (U. S. S. R.) 9, 917-28(1937). By means of a modified Kyropoulos method (C. A. 20, 2872) many crystals of sylvite from 8 to 15 cm. in diam. were obtained. Data are given on the surface tension, viscosity and d. of KCl at from 810° to 1170°. The method and app. used are described in great detail. F. H. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



***The Corrosion of Electric Arc-Welded Aluminium Sheet.** E. V. Tarkhov-vitser (*Rep. 1st Conference Corrosion Metals, Acad. Sci. U.S.S.R.*; *C. Abs.*, 1938, **32**, 2496).—[In Russian.] Carbon- and metal-arc welded aluminium sheet containing silicon 0·21, iron 0·75, and copper 0·34% was preferentially attacked in the weld by sodium hydroxide and hydrochloric acid solutions and attacked by sea-water and sodium chloride and hydrogen peroxide solutions.
—N. B. V.

PROCESSES AND PROPERTIES INDEX

The corrosion of electric arc welded aluminum sheet. V. Tsvetnovitser. *Repts. 1st Conf. Corrosion of Metals, Akad. Nauk S.S.S.R.*, *Elektroschweissung* 7, 226 (Nov. [illegible] 36); *Met. Abstracts in Metals & Alloys* 8, 11. C and metal-arc welded Al sheet contg. Si 0.21, Fe 0.75 and Cu 0.34% was preferentially attacked in the weld by NaOH and HCl solns. and attacked by sea water and by NaCl and H_2O_2 solns. In most cases the unwelded samples were more attacked than the welded samples, especially the C-arc welded sheets showed particularly good resistance. M. W. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TSEKHNOVITSER, Yu., inzh.-arkhitektor; NOVODVORSKAYA, I., inzh.-arkhitektor

Prestressing large-span construction elements using their own weight. Stroitel' no.12:14,26 D '58. (MIRA 12:1)
(Prestressed concrete construction)

TSEKHNOVITSER, Yu., arkhitektor

Apartments of tomorrow. IUn.tekh. 7 no.3:30-32 Mr '63.
(MIRA 16:3)
(Apartment houses)

KOZHEVNIKOV, S.N.; KOZLENKO, A.K.; KOS'KO, I.K.; MARTYNENKO, V.V.; RASKIN, Ya.M.; TSEKHNOVICH, L.I.

Instruments for the testing of machinery. Trudy Sem.teor.mash. 13 no.51: 86-111 '53. (MLRA 7:1)
(Engineering instruments) (Machinery--Testing)

16.6600

S/124/61/000/009/004/058
D234/D303

AUTHOR: Tsekhnovich, L.I.

TITLE: The equation of motion of a torsional electromechanical system and its simulating

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 23, abstract 9 A179 (Sb. nauchn. tr. Dnepropetr. metallurg. in-t, 1958, no. 35, 96-121)

TEXT: The author considers the problem of the degree of interconnection of mechanical and electrical phenomena in a system consisting of two inertial masses connected by an elastic element and having an electric d.c. motor as an actuator. It is shown that the complete equation of motion describing the electromechanical processes of such a system is of the fourth order. The "abbreviated" differential equation of the third order, corresponding to an electrical system with small coefficient of inductance, is investigated in detail. It is established that the interconnection between

Card 1/2

The equation of motion...

S/124/61/000/009/004/058
D234/D303

electrical and mechanical transition processes can be neglected and that these processes can be considered separately only at large values of a certain quantity which is equal to the product of natural frequency of torsional vibrations and electromechanical time constant of the armature. The possibility of constructing purely electrical and purely mechanical models, equivalent to the initial electromechanical system is considered. A description of experiments carried out on a purely electrical model and on a specially constructed electromechanical model is given. The experiments have confirmed the basic theoretical theses of the paper. [Abstracter's note: Complete translation]

Card 2/2

TSEKHNOVITSER, M. M., AND I. YA. GOL'DBERG

"Allergy and Immunity in Rheumatism," Annaly instituta im. Mechnikova, 1, 2, 221, 1935

[redacted], N. N., Professor

Moscow, (-1944-)

"On the wound infection"

Honored Scientist, Moscow, (-1944-)

Zhur. Mikrobiol., Epidemiol., i Immunobiol., No. 9, 1944

[redacted], M. ., Prof.

Moscow, (-1944-)

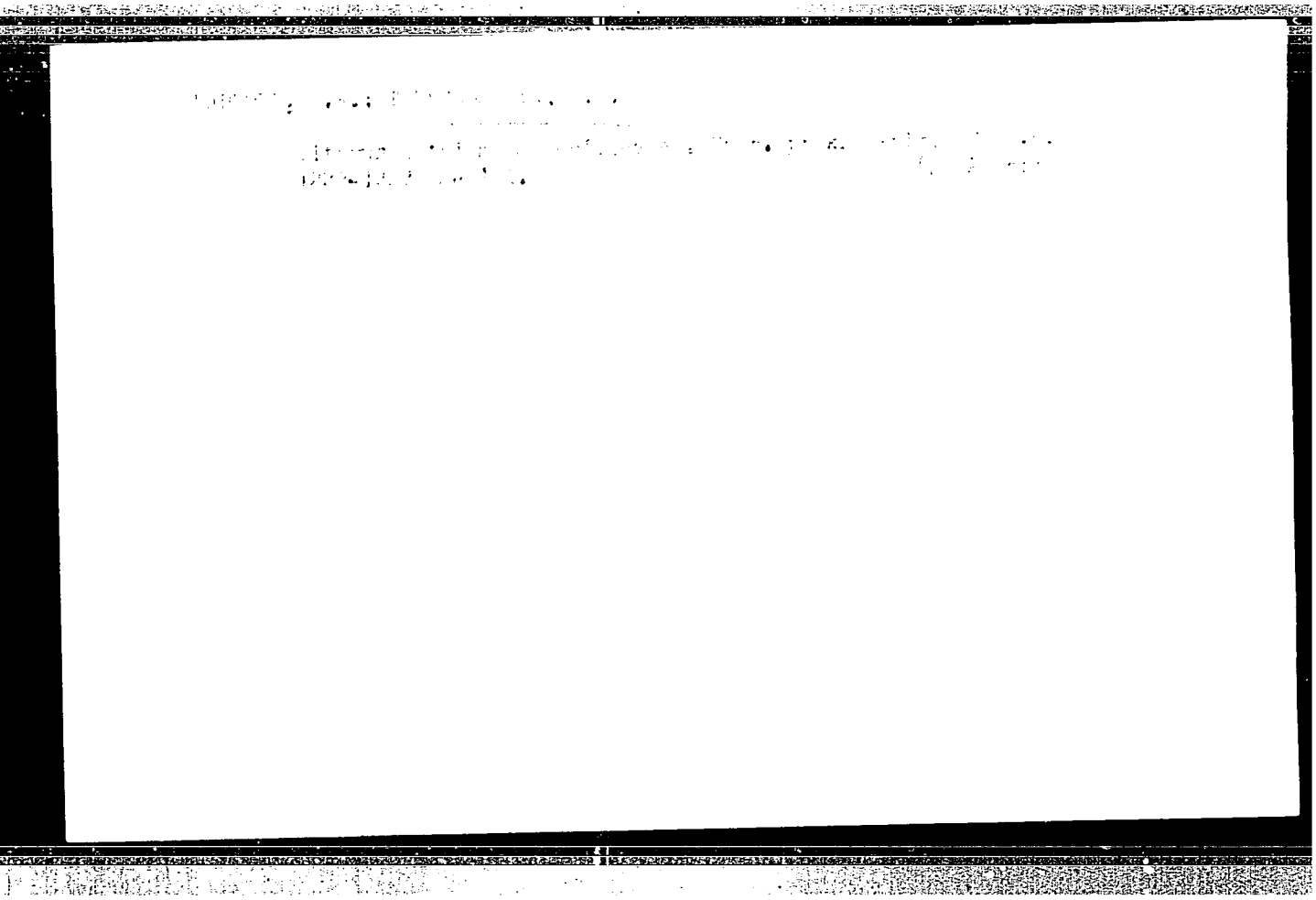
"Some Theoretical Questions about Serum Production 'An Adaptel Stenogram'," Zhur. Mikrobiol., Epidemiol., i Immunobiol., No. 10-11,1944

TSEKHNOVITSER, Yu. O.

MONOSZON, B.I., kandidat tekhnicheskikh nauk; TSEKHNOVITSER, Yu.O., arkhitektor.

The new central market of Leningrad. Biul.tekh.inform. 3 no.8:22-24 Ag '57. (MIRA 10:10)

(Leningrad--Markets)



CA

12

Content of vitamin C in citrus fruit as an index of their stability on storage. L. V. Metlitskii and V. M. Tsekhomskaya. *Doklady Akad. Nauk S.S.S.R.* 69, 837-8 (1949).—In stored fruit, like tangerines, lemons, and oranges, the respiratory gas exchange involves only the ascorbic acid that exists in the skin of the fruit, and the ascorbic acid in the body of the fruit acts as a reserve and is essentially unattacked. The peroxidase activity and the utilization of sugar stores is also restricted largely to the flavedo, with smaller indices in the albedo and very low values in the fruit proper. The peroxidase activity roughly parallels the ascorbic acid content in the various tissues, max. occurring in the flavedo. The spoilage indicated by brown spots results from reduction of oxidative activity and enhancement of anaerobic reactions. Generally, the higher the ascorbic acid level, the more resistant is the fruit to spoilage in storage.

G. M. Kosolapoff

1951

CA

12

Biochemical peculiarities in ripening and storage of green peas. I. I. Varentsov and V. M. Tsekhomskaya (Food Ind. Ministry, Moscow). *Biokhimiya Plodov i Ovoshchei, Sbornik* 2, 150 (65 1951). The d. of the pea as detd. with a penetrometer and the d. of the pea detd. pyknometrically can serve as ripeness indexes. Best quality material has a penetrometer index not over 2500, d. 1.02-1.04, high sugar content (av. 5%), and low ratio of starch/sugar. A product less desirable for canning that is overripe shows 3000 or more penetrometer reading, d. 1.04-1.06, 3-3.5% sugar, and up to 8% starch, or higher. Unshelled peas were stored 19 days at 0° without deterioration with a small rise of starch; shelled peas show a greater change of the starch-sugar ratio. Storage at −2° leads to bad flavor, caused by underoxidized substances. Storage at 8° leads to rapid decline of sugar and rise of starch and gives unsatisfactory results. A photograph of the penetrometer is given.

G. M. Kosolapoff

METLITSKIY, L.V.; TSEKHOMSKAYA, V.M.

Qualitative changes in respiratory gas exchange of citrus fruit in relation to storage temperature. Doklady Akad. Nauk S.S.S.R. 89, 1115-17 '53. (CA 47 no.19:10147 '53)
(MLRA 6:4)

Peculiarities of chemical composition of citrus fruit of Georgian S.S.R. L. V. Metlitskii and V. M. Tsekhomskaya. *Biokhim. Plodov i Ovoshchei, Akad. Nauk S.S.S.R., Inst. Biokhim., Sbornik* 3, 163–75(1955).—The average values of the content of water, fructose, glucose, sucrose, pectins, cellulose, acids, essential oils, mineral substances, and vitamins A, B_1, B_2, C, and PP, are given for the flesh, skin and whole fruit of tangerines, oranges, and lemons common to Georgian S.S.R. It is pointed out that the vitamin C content varies greatly in storage, being retained more satisfactorily in the skins of the fruit rather than in the fleshy parts.

G. M. Kosolapoff

All Sci Res Inst Canning & Vegetable Drying Ind, Min Food Industry USSR

ЦЕХНОВСКИЙ, В. М.

METLITSKIY, L.V., doktor sel'skokhozyaystvennykh nauk; TSEKHOMSKAYA, V.M., kandidat sel'skokhozyaystvennykh nauk; RUBIN, B.A., professor, spetsredaktor; PRITYKINA, L.A. redaktor; GOTLIB, E.M., tekhicheskiy redaktor.

[Picking and storing apples] Uborka i khranenie iablok, Moskva, Pishchepromizdat, 1956. 125 p. (MLRA 10:6)
(Apple)

METLITSKIY, L.V.; TSEKHOMSKAYA, V.M.

Functional disorders in apples during storage and measures for their control. Biokhim. pl. i ovoshch. no.4:42-58 '58.
(MIRA 11:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut konservnoy i ovoshchesushil'noy promyshlennosti Gosplana RSFSR.
(Apple--Storage)

17(3)

AUTHORS: Motlitskiy, L. V., Tsekhomskaya, V. M. SOV/20-122-5-32/56

TITLE: The Biochemical Nature of Physiological Diseases of Apples (Biokhimicheskaya priroda fiziologicheskikh zabolevaniy yablok)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5, pp 863 - 866 (USSR)

ABSTRACT: So far the opinion has been prevalent that the disease of apples during storage, known as "zagar" (blight) or scald (Ref 1), is caused by volatile products given off by the fruit itself. In fact, however, mainly the tissues on the surface are affected by this disease. It is said that it can be reduced to a minimum by wrapping the apples in paper soaked in oil, which absorbs those products. The authors, however, can hardly agree with this point of view. It was not possible to bring about a similar disease in apples when they were treated with a mixture of volatile substances that was very similar as to quality and

Card 1/4

quantity to the one given off by the fruit itself. Apples harvested when ripe are less susceptible than unripe apples, although the ripe ones usually give more volatile products (Ref 2). Wrapping unripe apples in paper soaked in oil does not protect them from the disease, whereas the use of ordinary cigarette paper, which cannot absorb volatile substances (Ref 3), protects the ripe apples against scald. In a chemical analysis it was discovered that scald-infected apples contain more alcohol and acetaldehyde than the healthy ones. In order to find one's way through these data, which at first sight seem to be contradictory, the authors watched the ripening and subsequent storing of two susceptible (Rozmarin, Antonovka) and two resistent (Boyken, Babushkino) kinds. The results obtained lead to the conclusion, that the physiological diseases of apples during storage are caused by the disturbed balance of gas exchange in breathing as well as of the process of oxidation and reduction of the tanning substances.

The Biochemical Nature of Physiological Diseases of Apples SOV/20-122-5-32/58

The gas exchange of breathing is shifted toward anaerobiosis, and the acetaldehyde formed weakens the activity of the dehydrases. The latter usually catalyze the reduction of the products of oxidation of the tanning substance. Because of the accumulation of tanning substances the tissues turn brown, the cells of the layer under the peel are hardened. This, in turn, reduces the permeability of the peel to air, and thus intensifies the anaerobic process and aggravates the disease. There are 11 references, 6 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut konservnoy i ovoshchesushil'noy promyshlennosti (All Union Scientific Research Institute for Canning and Fruit-Drying Industries)

PRESENTED: June 6, 1958, by A.I.Oparin, Academician

Card 3/4

[illegible]TLITSKIY, L.V.; LOBANOVA, A.S.; PUKHAVSKAYA, [illegible].Z.; [illegible]

Principles of the selection of potato varieties for the raw material supply zones of the dried vegetables industry. Trudy VNIIKOP no.11: 85-101 '62. (MIRA 17:9)

KOLBASIN, V.G., aspirant; TSHERNISHOV, V.., assistant; TRUSOVA, .V., inzh.;
BASIEV, V.A., inzh.

Practices in using the ultrasonic pulse method of controlling the strength of concrete in construction trusts of the city of Chelyabinsk. Sbor. trud. Inzh.-stroi. fak. Chel. politekh. inst. no.3:74-82 '63. (MIRA 17:9)

1. Trest Chelyabmetallurgstroy (for Trusova).

/0[illegible]/60/033/012/002/024
[illegible]/B505

AUTHORS: Vargin, V.V., and Tsekhomoskaya, T.S.

TITLE: Metaphosphates in low temperature enamels

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960, 2633-2637

TEXT: In the present work the authors studied glasses with a high P_2O_5 content, corresponding to the metaphosphate composition, in order to produce low temperature enamels for aluminum and aluminum-base alloys. The glasses were prepared by fusion of technically pure materials at 1000 - 1300°C depending on the glass composition. Basic oxides were introduced into the charge as carbonates, aluminum oxide as the hydroxide, ZnO and PbO as the oxides and P_2O_5 as orthophosphoric acid. After 1 - 3 hrs. firing the melts were cast onto steel plates and cooled in air. The plates thus prepared were then tested for chemical resistance to water and for their fusibi-

Card 1/3

lity since those two properties determine the character of the enamels. The fusibility was determined in terms of temperature at which glass powder - water mixtures gave smooth flowing melts. Amongst those tested were glasses containing 20 % less and 20 % more of P_2O_5 as compared with the metaphosphate. Almost all glasses with P_2O_5 deficiency tended to crystallize while those with P_2O_5 excess, although they did not crystallize, exhibited low chemical resistance. Chemical analysis has shown that in glasses with a P_2O_5 content exceeding that of metaphosphates, the phosphoric anhydride vaporized at a rate proportional to the temperature. All those glasses were unstable when fixed on the metal and caused foaming of enamels. It was found that simple metaphosphates, excluding lead metaphosphate, do not form glasses suitable for use in low melting enamels. On the other hand glasses containing two or three metaphosphates (e.g. aluminum and alkali metal metaphosphates) and especially systems containing metaphosphates of Li, Na, Al; Na, Ba, Al, and Na, Zn, Al give enamels of exceptional chemical stabi-

Metaphosphates in low ...

lity. The content of alkali metal metaphosphate should not, however, exceed 50 % and that of aluminum metaphosphate should not be less than 40 - 50 %. Chemical stability or fusibility of glasses based on metaphosphates may be improved by adding small quantities of B_2O_3, TiO_2 and NaF. The metaphosphate-base enamels for aluminum are more stable to water action than silicate enamels. There are 2 tables, 1 figure and 9 references: 2 Soviet-bloc and 7 non-Soviet-bloc. The references to the English-language publications read as follows: W.A. Weyl, N.I, Kreidl, J.Am.Cer.Soc., 24, 11, 372, 1941; L.R. Blair, M.D. Beals, J.Am.Cer.Soc., 34, 110, 1951; USP 2,866,713 30.12.58; and B.K. Niklewski, R.H. Ashby, Sheet Met. Ind., 29, 1037 1952.

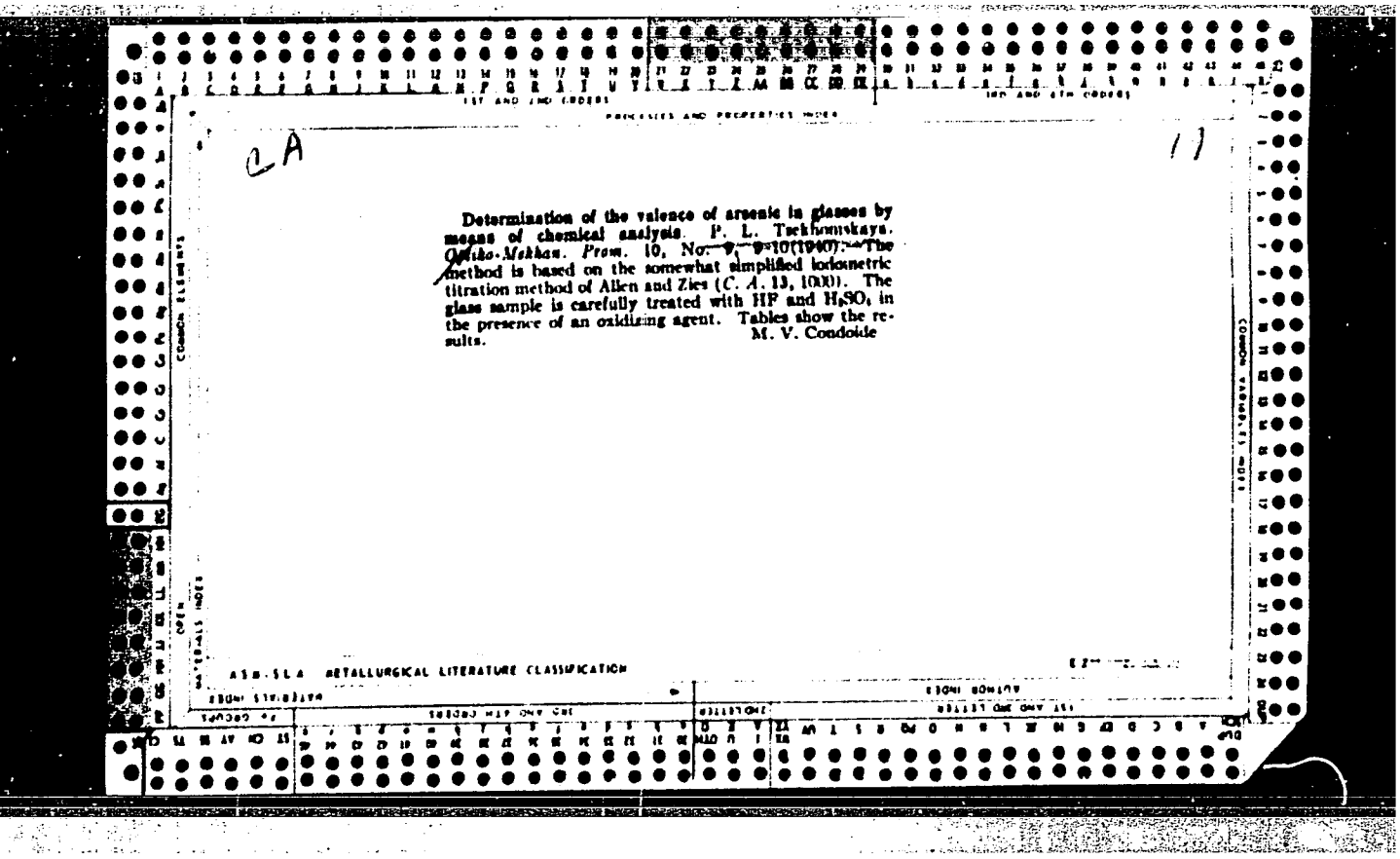
SUBMITTED: June 8, 1960

Card 3/3

TSEKHOVOL'SKAYA, D.I.; ZAVARITSKAYA, T.A.; DENISOV, G.S.; CHULANOVSKIY, V.M.

Utilization of infrared spectroscopy in the analysis of titanium tetrachloride. Zav.lab. 25 no.3:300-302 '59. (MIRA 12:4)

1. Vsesoyuznyy alyuminiyevo-magniyevyy institut.
(Titanium chlorides) (Spectrum, Infrared)



2A

11

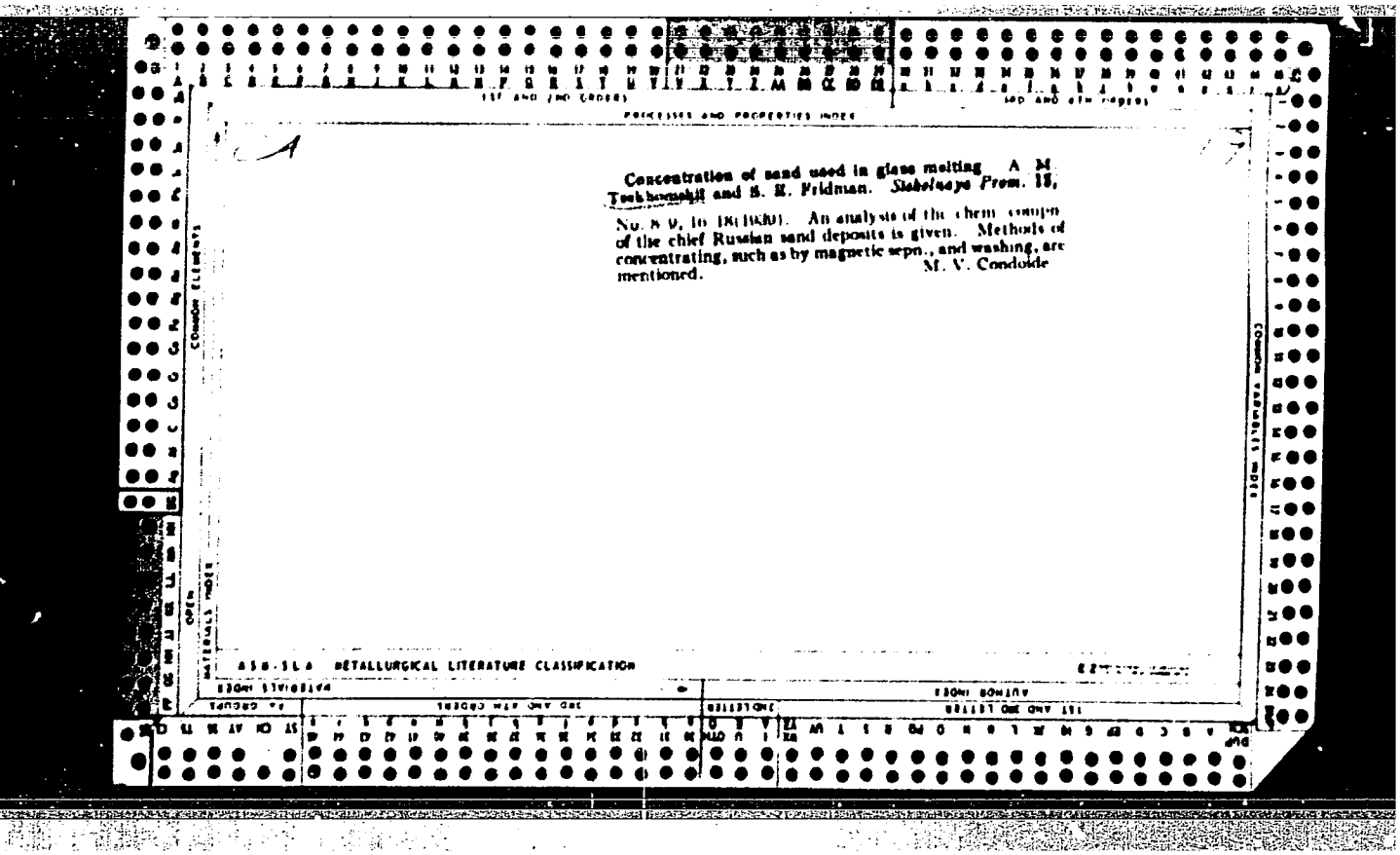
Determination of the valence of arsenic in glasses by means of chemical analysis. P. L. Tsekhomskaya. *Optiko-Mekhan. Prom.* 10, No. 9, 9-10(1940). The method is based on the somewhat simplified iodometric titration method of Allen and Zies (*C. A.* 13, 1000). The glass sample is carefully treated with HF and H_2SO_4 in the presence of an oxidizing agent. Tables show the results.
M. V. Condoide

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VOZNESENSKIY, D.V.; AMELANDOV, A.S.; GEYSLER, A.N.; GOLUBYATNIKOV, V.D.; [deceased]; DOMAREV, V.S.; DOMINIKOVSKIY, V.N.; DOVZHIKOV, A.Ye.; ZAYTSEV, I.K.; IVANOV, A.A ; ITSIKSON, M.I.; IZOKH, E.P., KNYAZEV, I.I.; KORZHENEVSKAYA, A.S.; MISHAREV, D.T.; SEMENOV, A.I.; MOROZENKO, N.K.; NEFEDOV, Ye.I.; RADCHENKO, G.P.; SERGIYEVSKIY, V.M.; SOLOV'YEV, A.T.; TALDYKIN, S.I.; UNKSOV, V.A.; KHABAKOV, A.V.; TSEKHOMSKIY, A.M.; CHUPILIN, I.I.; SHATALOV, Ye.T., glavnyy redaktor; KRASNIKOV, V.I., redaktor; MIRLIN, G.A., redaktor; RUSANOV, B.S., redaktor; POTAPOV, V.S., redaktor izdatel'stva; GUROVA, O.A., tekhnicheskiy redaktor.

[Instructions for organization and execution of geological surveys in scales of 1:50,000 and 1:25,000] Instruktsiia po organizatsii i proizvodstvu geologo-s"emochnykh rabot masshtabov 1:50,000 i 1:25,000. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr. 1956. 373 p. (MLRA 10:6)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. (Geological surveys)



Concentration of sand used in glass melting. A. M. Tsukhomskiĭ and S. E. Fridman. *Steklo i Keram.* 15, No. 8, 10-13(1958). An analysis of the chem. compn. of the chief Russian sand deposits is given. Methods of concentrating, such as by magnetic sepn., and washing, are mentioned. M. V. Condoide

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

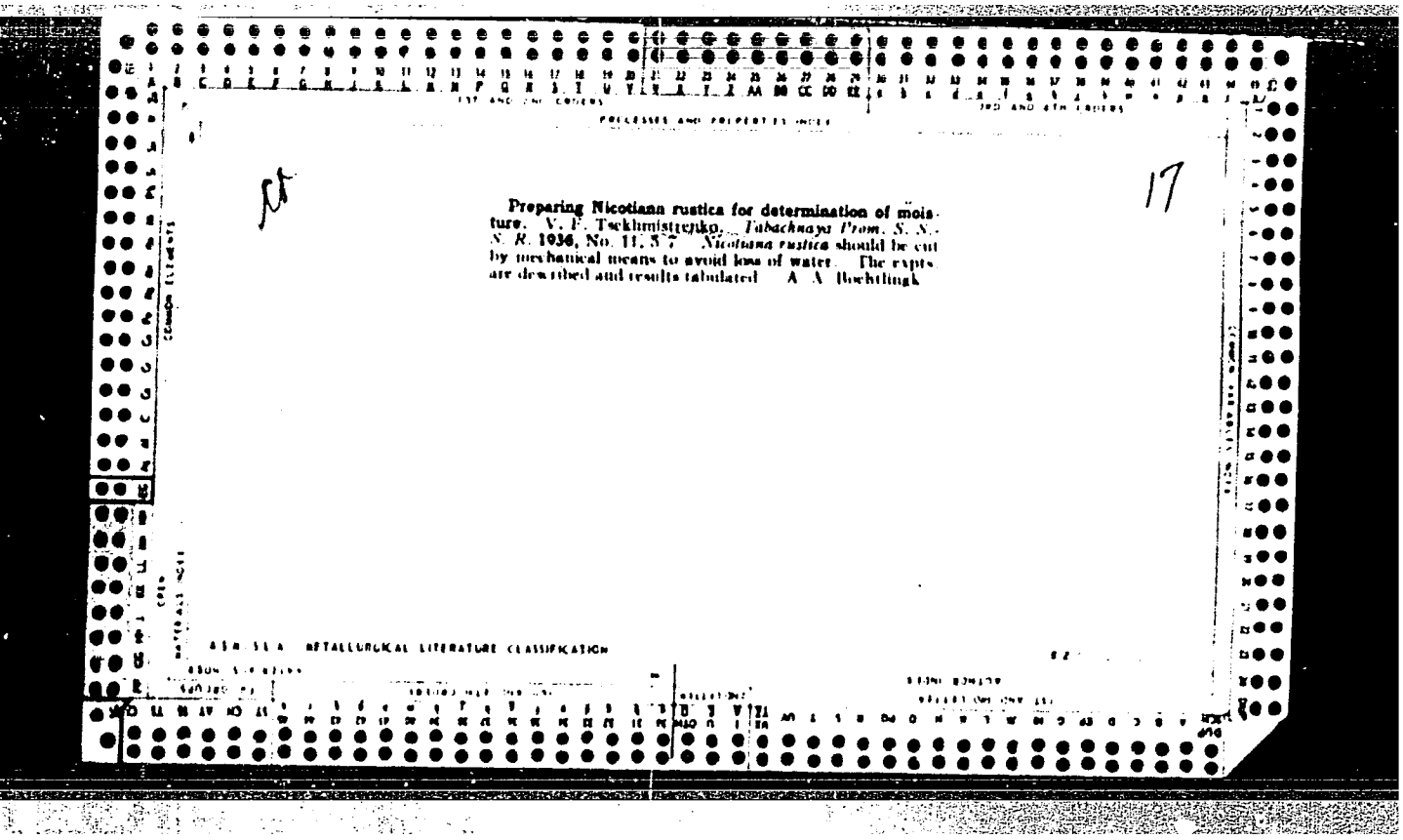
BC

B-1-6

Preparation of superphosphate from Schtschigrov phosphorite and from its mixtures with Podolian phosphorite or with apatite concentrates. S. P. Jarassorjan and R. M. Terkinovska (Ukrain. Chem. J., 1932, 7, [Sci.], 135—1[illegible]0).—Superphosphate containing 15% H_2O and 10·3—11% assimilable P_2O_5 (decomp. coeff. 90—95%) can be prepared from Schtschigrov phosphorite (I), containing 17·75% P_2O_5. The viscosity of the mixture of (I) with H_2SO_4 is, however, too high for factory practice. This difficulty can be overcome by using mixtures with Podolian phosphorite or with apatite concentrate (50—25%).

R. T.

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION



Preparing Nicotiana rustica for determination of moisture. V. F. Tsekhmistrenko. *Tabachnaya Prom. S. S. S. R.* 1936, No. 11, 5-7. *Nicotiana rustica* should be cut by mechanical means to avoid loss of water. The expts are described and results tabulated. A. A. Buchtilingk.

VARGIN, V.V.; TSEKHOMSKAYA, T.S.

Metaphosphates as the base of low-melting enamels. Zhur. prikl. khim. 33 no.12:2633-2637 D '60. (MIRA 14:1)
(Enamels and enameling) (Metaphosphates)

43257

S/080/62/035/011/001/011
D444/D307

15.2120

AUTHORS: Vargin, V.V., and Tsekhomskaya, T.S.

TITLE: Glasses of the system Na_2O-ZnO-Al_2O_3-P_2O_5 as bases for enamels on aluminum

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 11, 1962, 2363 - 2368

TEXT: The aim of the investigation was to see if such glasses were suitable for this purpose. Considering the system as a tetrahedron with Na_2O at its apex the glasses studied were on five sections with Na_2O contents of 10, 15, 20, 25 and 30 mol % (the maximum for adequate chemical stability). Chemical stability in water and 4 % acetic acid, and covering properties were investigated. The best composition (mol %) was: Al_2O_3 7.5 - 10, ZnO 20 - 25, Na_2O 15 - 25, P_2O_5 45 - 60. Annealed at 520°C such an enamel lost 1.17 and 1.47 % of its weight after 1 hr.'s boiling in water and acid respectively, the corresponding figures for an imported enamel for aluminum being

Card 1/2

Glasses of the system ...

2.2 and 5.7. With increasing Na_2O content the stability range becomes narrower. Stability is very sensitive to the Zn content and with a definite oxide ratio $(P_2O_5 + Al_2O_3)/(Na_2O + ZnO) < 1$ zinc can change its coordination number from 6 to 4 and partly enter the glass lattice. As regards coating quality, these phosphate glasses were not much improved by increasing the alkali content; high (over 10 mol %) alumina contents gave poor coatings. There are 4 figures and 1 table.

SUBMITTED: July 12, 1961

Card 2/2

TSEKHOMSKIY, A.M.; KARSTENS, D.I.; KHABIBULINA, F.Ya.

Marshallite in the weathering surface of Sinian formations in the Yenisey Range. Trudy VSEGEI 118:51-68 '64.
(MIRA 18:2)

TSEKHOMSKIY, A.M.; PETRUN'KINA, L.M.

Quartz sands of the Zeya-Bureya Depression in the Soviet Far East. Trudy VSEGEI 57:167-181 '61. (MIRA 15:4)
(Zeya-Bureya Plain--Sand)

TSEKHOMSKIY, A.M.

Texture and composition of the film on quartz sand grains. Kora vyvetr. no. 3:293-312 '60. (MIRA 13:12)

1. Vsesoyuznyy geologicheskiy nauchno-issledovatel'skiy institut.

(Sand)

TSEKHOMSKIY, A.M.

Genesis and distribution of quartz sands with a small iron content. Geol. rud. mestorozh. no.4:90-102 Jl-Ag '59. (MIRA 13:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut, Leningrad.

(Quartz)

TSEKHOMSKIY, A.M.

Composition of quartz sands and its characteristics in the light of industrial requirements. Mat. VSEGEI. Ob. ser. no.29:151-176 '60. (MIRA 14:7)

(Quartz)

TSEKHOMSKIY, A.M.

Characteristics of the mineralogical composition of quartz sands.
Mat. VSEGEI Litol. no.1:31-45 '56. (MIRA 11:2)
(Quartz) (Sand)

TSEKHOMSKIY, A.M.

Map predicting the deposits of quartz sands for molding and glass in the European part of the U.S.S.R. Biul.VSEGEI no.1:118-122 '48. (MIRA 14:5)

(Sand--Maps)

BABOSHIN, V.A.; BOROVIKOV, P.P.; ZAKHARCHENKO, A.I.; IVANOV, A.A.; NIKANOROV, A.S.; NIKITIN, V.D.; RYTSK, Yu.Ye.; SMIRNOVA, V.S.; SOKOLOV, Ya.N.; SOLOV'YEV, A.T.; TSEKHOMSKIY, A.M.

In memory of Daniil Timofeevich Misharev. Trudy VSEGEI 108:189-191 '64.
(MIRA 18:2)

S/181/63/005/002/039/051
B102/B186

AUTHORS: Karapetyan, G. O., Tsekhomskiy, V. A., and Yudin, D. K.

TITLE: Investigation of the structure of semiconductor glasses based on iron oxides

PERIODICAL: Fizika tverdogo tela, v. 5, no. 2, 1963, 627 - 633

TEXT: The electrical, optical and paramagnetic properties of Fe_2O_3 containing glasses were studied in dependence on the composition and on the redox conditions of melting. A total of 15 different compositions were investigated, most of them contained SiO_2 and BaO or PbO. Electrical conductivity, the e.p.r. spectra and the spectra of optical absorption were measured. $\log \rho = f(1/T)$ were straight lines, almost equally ascending for all glasses; $\log \rho$ decreases with increasing Fe_2O_3 percentage. The increase in conductivity is accompanied by a slight reduction of activation energy. A comparison of glasses melted under different redox condition shows that increased reduction (increased content of carbon in the mass) raises the resistivity irrespective of raised Fe II content. The e.p.r.

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spectra were measured in fields of up to 6 koe. Resonance lines were observed at g-factors of 4.3 and 2.0; their intensity depended on the composition. If the carbon content is increased the e.p.r. lines fade out due to $Fe^{3+} \rightarrow Fe^{2+}$ transition; the Fe^{2+} e.p.r. spectrum can be observed only at helium temperatures. The line with g = 2.0 vanishes first. On investigating the optical absorption it was found that both in the case of BaO and PbO content the blue transmissivity depends on the iron concentration. Conclusions: The high conductivity of the glasses investigated is due to the presence of Fe^{3+} ions ($3d^5$) in octahedral configuration (coordination 6). Introduction of Al into the mass or substitution of SiO_2 by B_2O_3 in BaO glass increases absorption and reduces conductivity. There are 5 figures and 1 table.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S. I. Vavilova, Leningrad (State Optical Institute imeni S. I. Vavilov, Leningrad)

SUBMITTED: September 26, 1962

MAZURIN, O.V.; TSEKHOMSKIY, V.A.

Nature of the increase of the electric resistance of alkali glass in case of its complete crystallization. Trudy LTI no.59:33-35 '61.

Effect of the complete crystallization of some lithium-silicate glasses on their electric resistance. Ibid.:36-39 (MIRA 17:9)

EWT(m)/EWP(e)/EWP(t) WH/GD

ACC NR: AT6027136 SOURCE CODE: UR/0000/65/000/000/0041/0045

AUTHOR: Kuznetsov, A. Ya.; Tsekhomskiy, V. A.; Tunimanova, I. V.

ORG: none

39
13+1

TITLE: Semiconducting silicate glasses based on titanium oxides

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Issledovaniya v oblasti khimii silikatov i okislov (Studies in the field of chemistry of silicates and oxides). Moscow, Izd-vo Nauka, 1965, 41-45

TOPIC TAGS: titanium dioxide, aluminum oxide, silicate glass, semiconducting material

ABSTRACT: Semiconducting glasses of the system $CaO-Al_2O_3-TiO_2-SiO_2$ containing various amounts of aluminum metal (added to create reducing conditions during melting at 1500°C) were studied. ESR spectra showed that the Ti^{3+} ion constitutes the base of the reduced phase in the glasses. The latter were divided into two groups: (1) those with a variable TiO_2 content in the initial glass and (2) those with a constant TiO_2 content (20 mole %) and a variable Al_2O_3 content. In all cases, an increase in the Ti^{3+} content of the glass was found to increase the electric conductivity. The activation energy of conductivity decreases with rising TiO_2 conduct in the initial glass, then remains approximately the same as the content of Ti^{3+} ions increases in glasses containing the same total amount of titanium; the preexponential factor ($\log \rho_0$) decreases with rising content of Ti^{3+} ions. The data show that in all cases only a

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ACC NR: AT6027136

small part of the total Ti^{3+} ions participate in the electric conductivity. Whereas in the initial glasses Al_2O_3 has almost no effect on the electric conductivity, in the reduced glasses the conductivity drops by 5 orders of magnitude as the Al_2O_3 content increases from 5 to 20%. The mechanisms of these phenomena are discussed. Orig. art. has: 2 figures, 3 tables and 1 formula.

SUB CODE: 11/ SUBM DATE: 28Apr64/ ORIG REF: 005/ OTH REF: 004

Card 2/2 gd

MAZURIN, O.V.; TSEKHOMSKIY, V.A.

Electroconductivity of certain alkali metal silicates in the vitreous and crystalline states. Izv. vys. ucheb. zav.; fiz. no.1:125-131 '64. (MIRA 17:3)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

KARAPETYAN, G.O.; TSEKHOMSKIY, V.A.; YUDIN, D.M.

Structure of semiconducting glasses based on iron oxides.
Fiz. tver. tela 5 no.2:627-633 F '63. (MIRA 16:5)

1. Gosudarstvennyy opticheskiy institut imeni S.I.Vavilova, Leningrad.
(Glasses—Electric properties) (Iron oxide)

TSEKHOMSKIY, V.A.; MAZURIN, O.V.; YEVSTROP'YEV, K.K.

Characteristics of the conductivity of aluminosilicate glasses. Fiz. tver. tela 5 no.2:586-589 F '63. (MIRA 16:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta i Gosudarstvennyy opticheskiy institut imeni S.I.Vavilova.
(Aluminosilicates—Electric properties)

Investigation of the electrical conductivity of vitreous semiconductors of the type As_2Te_3. A. I. Gubanov, T. F. Mazets (10 minutes).

Study of semiconducting glasses by the electron paramagnetic resonance method. G. A. Karapetyan, V. A. Tsekhomskiy, D. M. Yudin.

Semiconducting silicate glasses based on titanium oxide. Ya. A. Kreznetsov, V. A. Tsekhomskiy. (Presented by V. A. Tsekhomskiy--15 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

YEVSTROP'YEV, K.K.; TSEKHOMSKIY, V.A.; Prinimal uchastiye: NAZAROV, V.A., student

Effect of an alkaline oxide on the n-type conductivity of Fe-containing glasses. Fiz.tver.tela 4 no.12:3390-3395 D '62. (MIRA 15:12)

1. Gosudarstvennyy opticheskiy institut im. S.I.Vavilova.
(Sodium oxide—Electric properties)
(Glass)

15,2640

S/181/63/005/002/033/051
B102/B186

AUTHORS: Tsekhomskiy, V. A., Mazurin, O. V., and Yevstrop'yev, K. K.

TITLE: Conduction type of alumosilicate glasses

PERIODICAL: Fizika tverdogo tela, v. 5, no. 2, 1963, 586 - 589

TEXT: The influence of the aluminum oxide percentage on the electrical properties of sodium alumosilicate glasses was investigated by measuring the conductivity and diffusion coefficient of 13 $Na_2O \cdot xAl_2O_3 \cdot (87-x)SiO_2$ (in mole%) where $0 \leq x \leq 39$ (I) and of 20 $Na_2O \cdot xAl_2O_3 \cdot (80-x)SiO_2$ where x=0,5; 10, 15, 20, 25. (II) The glasses were produced by fusing the pure components at 1450 - 1750°C in quartz crucibles. σ was measured at 70 - 500°C. For all the 19 different glass samples measured, $\log \sigma = f(1/T)$ were straight lines. The activation energy E obtained from their inclinations varied between 0.55 and 0.71 ev. For the glasses I also the diffusion coefficient D_{Na} was measured with use of Na^{22} tracer at 300 and 415°C. The change in electrical properties is characteristic of the Al_2O_3:Na_2O ratio inasmuch at 1:1 all

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parameters have extremes (cf. Figs.). From the results it may be concluded that the changes in activation energy are induced by purely ionic processes. There are 3 figures and 2 tables.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensovet); Gosudarstvennyy opticheskiy institut im. S. I. Vavilova (State Optical Institute imeni S. I. Vavilov)

SUBMITTED: September 18, 1962

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Conduction type of ...

S/181/63/005/002/033/051
B102/B186

Fig. 1

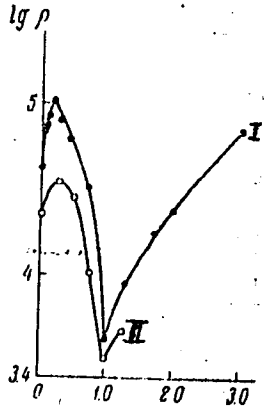


Fig. 2

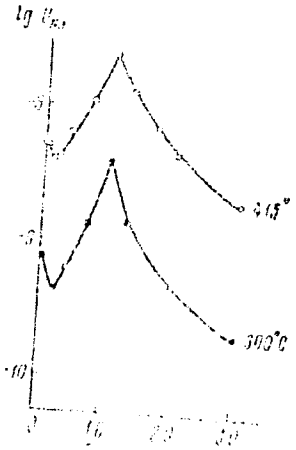
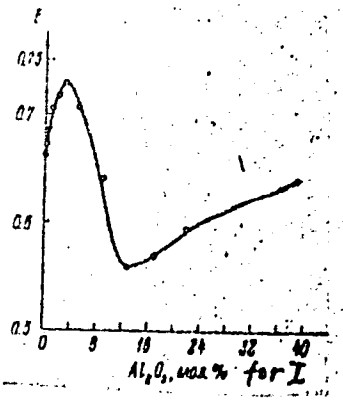


Fig. 3



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5.5310

S/075/61/016/005/003/010
B101/B110

AUTHORS: Tsekhovol'skaya, D. I., and Zavaritskaya, T. A.

TITLE: Quantitative determination of some impurities in titanium tetrachloride by infrared spectroscopy

PERIODICAL: Zhurnal analiticheskoy khimii, v. 16, no. 5, 1961, 623 - 626

TEXT: Earlier papers (Zavodsk. laboratoriya, 25, 300 (1959); Tsvetnyye metally, no. 4, 58 (1960)) reported on the determination of $TiOCl_2$, $VOCl_3$, HCl, CCl_6, $COCl_2$, CO_2, and CCl_3COCl in $TiCl_4$ by infrared spectroscopy. The present paper describes the determination of thionyl chloride, phosphorus oxychloride, carbon disulfide, and silicon tetrachloride in $TiCl_4$. The optical density of $SOCl_2$ was measured at 1241 cm^{-1}, and the concentration was calculated from c = D/Kd, where c is the concentration, D is the optical density, and d is the thickness of the absorbing layer. The absorption coefficient K was 150 cm^{-1}. The determination can only be carried out in purified $TiCl_4$ which contains only traces of $SiCl_4$ (band at

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